IN THE CLAIMS

1. (Currently Amended) A passive optical network with reduced optical beat noise interference, said network comprising:

a plurality of optical networks units (ONUs), each ONU having an assigned code and being configured for demodulating received signals modulated with the assigned code, splitting each of the demodulated signals into a downstream signal and error information comprising error correction codes, and when transmitting signals said ONU encoding optical signals for transmission with the assigned code and controlling the frequency of the encoded optical signals according to error correction codes from the received error information ; and

a central office configured for controlling a non-wavelength division multiplexed (non-WDM) light source for the plurality of ONUs ~~to decode~~by decoding the signals transmitted from said ONU, and for providing error counts of the error correction code to the ONU as the error information based on a quality of the signals transmitted by said ONU.

2. (Original) A passive optical network as claimed in claim 1, wherein the passive optical network is a code division multiple access optical network.

3. (Previously Presented) A passive optical network as claimed in claim 2, wherein the frequencies of the transmitted optical signal are controlled using error counts from the error information transmitted by the central office.

4. (Original) A passive optical network as claimed in claim 3, wherein the assigned code is a pseudo-noise code.

5. (Previously Presented) A passive optical network as claimed in claim 4, wherein the optical signals from the ONU comprises upstream signals and signals from the central office comprise downstream signals.

6. (Original) A passive optical network as claimed in claim 5, wherein the central office comprises:

a multiplexer for multiplexing the error counts of the error correction codes and the downstream signals for the optical networks units:

a first pseudo-noise code generator for generating a pseudo-noise code for code division multiple for each subscriber;

a first code division encoder for code division encoding the multiplexed signals by the multiplexer with the pseudo-noise code generated by the pseudo-noise code generator;

a downstream light source for transmitting and converting the code division encoded signals into optical signals;

a first photo-electric converter for converting the optical signals from the optical networks units into electrical signals;

a first code division decoder for code division decoding signals from the first photo-electric converter using the pseudo-noise code generated by the first pseudo-noise code generator; and

a error correction code demodulator for transferring an error counter from the error correction code of the code division-decoded signals to the multiplexer.

7. (Original) A passive optical network as claimed in claim 6, wherein the optical networks units comprises:

a second photo-electric converter for converting the downstream signals from the central office into the electric signals;

a second pseudo-noise code generator for generating pseudo-noise code assigned to the optical networks units for code division multiple;

a second code division decoder for code division decoding the electric signals from the second photo-electric converter with the pseudo-noise code of the second pseudo-noise code generator;

a demultiplexer for demultiplexing the multiplexed downstream signals and error counter of error correction codes from the code division-decoded signals;

an error correction code modulator for modulating and inserting error correction code into the upstream signals in upstream transmission;

a second code division encoder for code division encoding the signals modulated from the error correction code modulator by the second pseudo-noise code generator;

an upstream light source for transmitting the code division encoded signals into optical signals; and

a light source bias controller for controlling the upstream light source bias current by using error counter transmitted from the demultiplexer.

8. (Withdrawn) A passive optical network as claimed in claim 5, wherein the central office comprises:

a multiplexer for mulitplxing error counts of the error correction codes and the downstream signals for the optical networks units;

a first pseudo-noise code generator for generating pseudo-noise codes for code division multiple for each subscriber;

a first code division encoder for code division encoding the multiplexed signals with the pseudo-noise codes generated by the pseudo-noise code generator;

a downstream light source for transmitting and converting the code division encoded signals into optical signals;

a first photo-electric converter for converting the optical signals from the optical networks units into electrical signals;

a error correction code demodulator for extracting error counter from error correction codes of the code division decoded signal included electric signals converted by the first photo-electric converter and transferring the extracted error counter to the multiplexer; and

a first code division decoder for code division decoding signals not having the error counter of the error correction code extracted by the error correction code demodulator with the pseudo-noise code generated by the first pseudo-noise code generator.

9. (Withdrawn) A passive optical network using error correction code as claimed in claim 8, wherein the optical networks units comprises:

a second photo-electric converter for converting the downstream signals received from the central office into the electric signals;

a second pseudo-noise code generator for generating pseudo-noise codes assigned to the optical networks units for code division multiple;

a second code division decoder for code division decoding the electric signals from the second photo-electric converter with pseudo-noise codes of the second pseudo-noise code generator;

a demultiplexer for demultiplexing the multiplexed downstream signals and error counter of error correction codes from the code division-decoded signals;

a second code division encoder for code division encoding upstream signals by the second pseudo-noise code generator;

an error correction code modulator for modulating and inserting error correction codes into the upstream signals code division encoded by the second code division encoder in time of upstream transmission;

an upstream light source for transmitting the code division encoded signals into optical signals; and

a light source bias controller for controlling the upstream light source bias current by means of error counter transmitted from the demultiplexer.

10. (Previously Presented) A passive optical network as claimed in claim 1, wherein the error correction codes comprise a Reed-solomon code.

11. (Previously Presented) A passive optical network as claimed in claim 1, wherein the error correction code comprise a BCH code.

12. (Previously Presented) A passive optical network as claimed in claim 1, wherein the error correction code comprise a turbo code.

13. (Previously Presented) A passive optical network as claimed in claim 1, wherein the error correction codes comprises a LDPC code.

14. (Currently Amended) An optical network unit (ONU) for use in a passive optical network having reduced optical beat noise interference, the ONU comprising:

a processor configured for (1) transmitting signals modulated with an assigned code, (2) including error correction codes with the transmitted signals, and (3) controlling frequencies of the transmitted signals by using error correction code received from a non-wavelength division multiplexed (non-WDM) light source of a central office.